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ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER

MARCANTONI, PAUL D

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,166

Applicant(s)

PRICE, CHARLES E.

Examiner

Paul Marcantoni

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/23/05 RCE and response.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14,17,18,20-22,24-27,29,32-34,36,37 and 39-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-14, 17,18, 20-22, 24-27, 29, 32-34, 36, 37, and 39-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

The applicants' 9/23//05 RCE and response is acknowledged yet it is not found persuasive.

Request for a Substitute Specification:

The applicants are respectfully requested to provide a substitute specification with a sworn statement that the substitute specification contains no new matter. The reason for this is that the applicants' usage of Tables in their Figures (or Drawings) separate from their specification is improper. The Tables listed as Figures should be inserted into the body of the specification See MPEP 1.83(a), 37 CFR 1.121(b) (or MPEP 714) and 37 CFR 1.58(a). The Tables that should be in the body of the specification are Figure 3, the Table on the bottom of Figure 6A, the Table on the bottom of Figure 6B, Figure 7A (really a table), Figure 7B (a table), Figure 7C (a table), Figure 8A and 8B (both tables), the table at the bottom of 8C, Figure 9A (table), Figure 9B (table), and table at bottom of Figure 9C. Applicants should insert these tables into the new substitute specification and re-number these tables. Also, applicants should renumber the Figures because there are now fewer of them as well as cancellation of the original Figures to avoid confusion should the case move to allowance and issue. This is necessary because if the case was allowed in its present form, it would likely be returned to the examiner for the reasons already cited above until this problem was rectified.

35 USC 112 First Paragraph:

Claims 1, 3-14, 17,18, 20-22, 24-27, 29, 32-34, 36, 37, and 39-46 are rejected under the first paragraph of 35 USC 112 as they are not commensurate with an enabling disclosure nor do they enable one of ordinary skill in the art to make or practice their invention.

There are no **amounts** of bottom ash, cement (nor the specific type-is it hydraulic, and is it the type including Portland cement, alumina cement, Magnesia cement, phosphate cement, gypsum, etc.) and water that are critical to obtain the claimed values for compressive strengths. There are no examples showing how to make or practice this invention. Further, for the ranges of amounts given in the specification, none of them clearly points out which particular range leads to what compressive strength. There is just a listing of statements as to what compressive strengths that can be achieved but no guidance as to how much of each components, what type of cement specifically, particle size, conditions of curing (is it heated, cured in air, vacuum?, etc) to lead to these compressive strengths. Thus, one of ordinary skill would have not been able absent burdensome trial and error to figure out exactly how to make or practice applicants claimed invention and obtain their claimed compressive strengths. It is also noted that the weight of the entire package is non-enabled as well because it still is not clear how much of cement and bottom ash are critical to lead to the lightweight properties as claimed. Certainly, minute amounts of bottom ash (e.g. 0.1 wt%) and 99.9 wt% cement such as Portland cement will not lead to a lightweight package and it seems impossible that applicants can say any amount is an effective

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amount and will lead to a lightweight property. The only way around this issue was to actually provide the critical amounts of components (including the specific type of cement used) that enable one of ordinary skill in the art to achieve a lightweight cement mix of high compressive strength. It is improper to claim a compressive strength in a claim without actually providing the amounts that get one that compressive strength. Without specific amounts, applicants are basically saying that any amount from zero to 100 wt% suffices and will obtain their compressive strengths which is highly improbably if not possible.

Applicants are also referred to Figures 7A, 7B, 8A, and 9A which are really "tables" and not figures providing the ranges of each amount of component to obtain their compressive strengths. Applicants cannot properly, for example, in their independent or dependent claims, claim ranges of:

In claim 3: at least 4000 and greater than 5000 psi unless they have the specific amount of cement (what type is it in these Figures? That is not clear), coarse aggregate for bottom ash (what specific particle size for coarse aggregate fly ash for each of these Figures did applicants actually use to obtain their listed compressive strengths-that is also unclear from these Figures), fine aggregate(what specific particle size for fine aggregate bottom ash did applicants actually use to obtain these compressive strengths in these Figures or Tables?), and water (the amount of water is critical and applicants require the addition of a specific amount of water or water/cement ratio to obtain their compressive strengths.

Applicants must present the specific amounts of cement, coarse aggregate, fine aggregate, and water from Figures 7A, 7B, 8A, and 9A which allow for them to obtain their claimed compressive strengths into their claims. Applicants do not have support for any amounts for each component from zero to 100 wt% for each component to obtain these compressive strength values. Applicants are limited to their original disclosure.

35 USC 112 Second Paragraph:

Claims 1, 3-14, 17,18, 20-22, 24-27, 29, 32-34, 36, 37, and 39-46 remain rejected under 35 USC 112, second paragraph, as failing to set forth the subject matter the applicant(s) regard as their invention.

The terms "effective amount" for bottom ash, cement, and water are indefinite. Applicants do not particularly point out and distinctly claim the specific amounts of each component above which allege to lead to unexpected results for parameters such as compressive strength. Applicants cannot rely on the specification because they do not claim the specific amounts in their claims that lead to their claimed compressive strength values in their independent and dependent claims.

The claims are also indefinite because applicants do not particularly point out and distinctly claim the specific amounts of each component critical to the alleged unexpected compressive strength results of their claimed invention.

The term "cement" is indefinite in the claims. What specific cement do applicants use to obtain the compressive strengths from Figures 7A, 7B, 8A, and 9A? Applicants only have support for a specific type of cement that was utilized for these mixtures or batches. What was this cement? Was it Portland cement? Blast furnace slag cement?

Whatever cement it is, should applicants claim compressive strengths they must indicate the specific cement used to obtain their compressive strengths.

The claims are indefinite with respect to the terms "fine portion" (do you mean fine aggregate?) and coarse portion (do you mean coarse aggregate?). The applicants do not particularly point out and distinctly claim the particle size or particle size range applicants consider coarse and the particle size or particle size range applicants consider fine with respect to bottom ash. It is also noted that specific amounts must be in the claims in order to claim compressive strengths.

The following is indefinite with respect to the original disclosure because it is unclear for Figures 7A, 7B, 8A, and 9A what the specific particle size utilized is for coarse aggregate for these different batches or mixtures 1 through 7 (see for example Figure 7A) and the specific particle size utilized for the fine aggregate for these different batches or mixtures to obtain their compressive strengths. What are they for each one? Please clarify the record because the actual size used can not be found in any figure or in the original disclosure.

The terms "between about" is indefinite in claims 6, 18, 26, 34, and 41 and in the original disclosure. The term between means that there are no values between the two points such as the range for bottom ash to cement ratio of 2:1 to 2:3. The inclusion of the term about seems to mean that the amount can be a bit less than 2:1 or a bit more than 2:3 because about permits some tolerance. "About" permits some tolerance. At least about 10% was held to be anticipated by a teaching of a content not to exceed about 8%. In re Ayers, 154 F 2d 182, 69 USPQ 109 (CCPA 1946). A pressure limitation

of 2-15 PSI was held to be readable on a reference which taught a pressure "of the order of about 15 PSI." In re Erickson, 343 F 2d 778, 145 USPQ 207 (CCPA 1965).

There is thus confusion with respect to these terms because they seem to contradict each other. About allows for some tolerance around the points above and below the data point whereas between must be just that; between the two data points and not above and below it. In other words, no bottom ash to cement ratio slightly below 2:1 or bottom ash to cement ratio slightly above 2:3.

The term "about 2:1" used throughout the claims does not support or is not supported by the *compressive strength tested samples* from the original disclosure either. The applicants are referred to Figure 7A which shows 7 different batches or mixtures. The examiner has calculated the bottom ash to cement ratio for Figures 7A batch or mixture #'s 1 through 7.

<u>Mixture#</u>	<u>Bottom Ash/Cement Ratio</u>
1	2 : 2
2	2 : 3
3	2 : 1.9
4	2 : 1.5
5	2 : 1.7
6	2 : 1.5
7	2 : 1.3

Note: Figure 7B also has the same bottom ash/cement ratio as Figure 7A:

<u>Mixture#</u>	<u>Bottom Ash/Cement Ratio</u>
1	2 : 2
2	2 : 3
3	2 : 1.9
4	2 : 1.5
5	2 : 1.7
6	2 : 1.5
7	2 : 1.3

Figure 8A has a bottom ash/cement ratio of **2 : 1.3**, Figure 9A has a bottom ash/cement ratio of 2 : 2. Therefore, the actual ranges of amounts supported for obtaining the applicants claimed *compressive strengths* from the Figures (or tables) is in the specific range of 2 : 1.3 to 2 : 3. In other words, the result of this calculation and conversion of the batches or mixtures from these Figures (tables) is the following:

1) It is not clear if applicants mean that “about 2:1” is inclusive of 2:1.3. While about claim language does permit some tolerance, does this mean that 2:1.3 is inclusive of about 2:1?

2) Also, should applicants decide to amend their claims in their next response, they are reminded that they do not seem to have support for compressive strength values of “about 2:1” because they do not have support for any examples of mixtures from these Figures of a bottom ash/cement ratio of exactly 2:1 or slightly less than that. Thus, should applicants claim compressive strengths for their independent or dependent claim, the only permissible range *is* **2 : 1.3 to 2 : 2.3.** Also, should applicants claim compressive strengths, they must provide the ranges for water/cement ratio also. Further, all values for compressive strength are limited to cement, bottom ash coarse aggregate, bottom ash fine aggregate, and water and **no other components.** Applicants must also use consisting of claim language because they only have support from Figures 7A, 7B, 8A, and 9A for only these components and no other components to attain their claimed compressive strengths. So, applicants must also use **consisting of** claim language because they only have support for the three components of bottom ash, cement (what kind of cement?), and water.

Applicants are limited to water/cement ratios of from **0.35 to 0.78**. Should applicants include these two ranges in their claims that have their compressive strength limitation, this should resolve any issues of the amount of bottom ash, cement, and water that are used to obtain these compressive strengths.

As for cement, the applicants did not provide the **specific type of cement** (was it Portland cement?) that was used to obtain the compressive strengths from Figures 7A, 7B, 8A, and 9A. The specific type of cement must also be present in the claims should applicants claim values for compressive strengths because only that cement used obtained those strengths.

Objection to Original/Substitute Specification or Original Disclosure:

The original disclosure is objected to because applicants do not provide the specific particle size for what they used for coarse aggregate and fine aggregate to obtain their compressive strengths in Figures 7A, 7B, 8A, and 9A. This would be resolved if applicants can provide the specific particle size for each actually used for testing to remove this objection. Note that the particle sizes must already be listed in the original disclosure because presentation of particle sizes not within the literal teaching of the original disclosure can be construed to be new matter. It is also noted that from these same Figures or tables it is not clear what type of cement was used. Applicants are respectfully requested to indicate the specific cement used for the mixtures and compressive strength testing.

35 USC 102/103 Rejection:

Claims 1, 3-14, 17, 18, 20-22, 24-27, 29, 32-34, 36, 37, and 39-46 are rejected under 35 USC 102 (a and b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Hopkins et al. '075, Nisnevich et al. '751, Shulman '547 B2, Doty et al. '446, Brewer et al. '950 or '261, Jones '973, Merkley et al. '744 B2, '745 B2, '246 B2, or '883 A1, Lee et al. (KR 2002055481-abstract only), Naik et al. (abstract only) Lai (abstract only), or Lim (KR 2002006569-abstract only).

Hopkins et al. '075 teach a composition comprising cement and bottom ash with a compressive strength from 50.5 MPa to 57 MPa (equal to 7324 psi to 8267 psi) which is thus within applicants' claimed range. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art (see claim 1 and 17).

Nisnevich et al. '751 teach a composition comprising cement and bottom ash (see claims 1 and 5 in col.18) thus anticipating the instantly claimed invention. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art. Note that Nisnevich even teaches a strength as high as 8.5 MPa or 1233 psi in Table II in column 6. The applicants cannot rely on their claimed compressive strength values unless they provide what was requested by the examiner in his explanation above.

Shulman '547 B2 teaches compositions comprising Portland cement, bottom ash, fly ash, micronized polystyrene foam particles, water proofer latex, and water to obtain a compressive strength as high as 3900 psi (see Example 21 in column 13). Note

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that applicants' present claim language is inclusive or open claim language (comprising) that allows for the addition of other components such as polystyrene foam and conventional fly ash. Comprising leaves the claim open for the inclusion of unspecified ingredients even in major amounts. Ex parte Davis et al., 80 USPQ 448 (PTO Bd of App.1948).

Doty et al. '446 teach a composition comprising Portland cement and bottom ash (see claims 1-16 in cols.5-6). Again, applicants use comprising claim language allowing for the inclusion of other components such as polystyrene.

Brewer '950 or '261 teach a composition comprising Portland cement and fly ash wherein the fly ash is inclusive of bottom ash (see claims and '261, for example, bottom of col.2, lines 64-68 teaching bottom ash is inclusive of the genus of fly ash) thus anticipating the instant invention. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Jones '973 teaches a composition comprising cement, fly ash, sand, bottom ash, water, water reducer, and air entraining agent and even obtains a 28 day compressive strength of 2600 to 2650 psi thus anticipating the instant invention. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Merkley et al. patents and publications all teach a composition comprising cement and bottom ash thus anticipating the applicants' claimed invention. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Lee et al. (KR '481 abstract) teach a composition comprising bottom ash and Portland cement in amounts overlapping applicants' claimed invention. While the strength values for 28 day compressive strength are 3 to 83 N/sq cm (or 4.3 psi to 120 psi), it still meets applicants' claimed invention because the amounts overlap and applicants' own strength values require the conditions stated above and included in their Figures 7A, 7B, 8A, and 9A. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Naik et al. (abstract) teach a composition comprising cement and bottom ash with an overall compressive strength of 345 to 690 kPa which equates to 50 psi to 100 psi. While not as high as applicants claimed compressive strength, applicants cannot rightfully (without the proper amounts of components to get them their compressive strengths) claim their compressive strengths without the specific amounts and the conditions set forth above such as amounts, type of cement used, water to cement ratio, Consisting of claim language, etc. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Lai et al. (abstract) teach a composition comprising cement and bottom ash with an overall 28 day compressive strength of about 1 MPa which is equal to 145 psi. While not as high as applicants claimed compressive strength, applicants cannot rightfully (without the proper amounts of components to get them their compressive strengths) claim their compressive strengths without the specific amounts and the conditions set forth above such as amounts, type of cement used, water to cement ratio, consisting of

claim language, etc. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Lim (KR '569-abstract) teach a composition comprising cement and bottom ash thus anticipating the instantly claimed invention. Even if not anticipated, overlapping ranges of amounts would have been prima facie obvious to one of ordinary skill in the art.

Response:

The applicants state that they have support for the amounts of components in Figures 7A through 9D which discloses how to achieve their compressive strength. Yet, those same examples do not teach the specific type of cement nor do they teach the specific particle size of coarse aggregate bottom ash and fine aggregate bottom ash used for the examples or mixtures to obtain their compressive strengths. Thus, one of ordinary skill in the art would have been unable to make or obtain their compressive strengths without knowing the identity of the specific type of cement used and the particle size that achieves those strengths. As stated above those Figures need to be "Tables" and they should be inserted into the specification. Presently, the inclusion of Tables as Figures or Drawings is improper.

The applicants use of "effective amount" fails as well. Applicants seem to be relying upon their specification to define their claims. While it is true that the claims may be read in light of the specification, it is improper to read the limitations of the specification into the claims. In re Yamato, 222 USPQ 93; In re Wilson, 149 USPQ 523; Graver Tank v. Linde Air Products Co. 80 USPQ 451 (Supreme Court). The applicants

cannot read the limitations of their Figures 7A through 9D into the claims but must actually have those limitations "in" the claims in order to obtain their claimed compressive strengths. As explained above, there are limitations in amounts, type of cement, only three components used (cement, bottom ash and water), bottom ash/cement ratio, water/cement ratio, etc. that must be in the claim for them to claim these unexpected compressive strengths.


The applicants have amended their claims to fine portion and coarse portion yet do not define what the particle size range of amounts are for coarse aggregate and fine aggregate. Applicants should consider deleting "portion" as it is evident they mean aggregate and make the change to this term. The examiner is unclear what constitutes a coarse aggregate and fine aggregate yet it seems that on the bottom of page 5 of applicants' specification they define a first portion (coarse aggregate?) of particle sizes ranging from about 0.75 inches to about 0.003 inches and a second portion (fine aggregate?) of particle sizes less than 0.006 inches. This is not entirely clear either since the "first" portion overlaps the "second" portion. How can there be any distinguishing between coarse and fine aggregate if they overlap as shown on the bottom paragraph of page 5?

Also, again with respect to coarse aggregate and fine aggregate, it is still not clear from the original disclosures from applicants Figures 7A through 9D what the specific particle size is for coarse aggregate and fine aggregate that was used in these data tables to obtain these listed compressive strengths. Clarification and the answers to this question as well as others raised above are respectfully requested.

The applicants also seem to argue that the prior art is inclusive of components outside the claimed composition of bottom ash, water, and cement. Yet, applicants use comprising claim language. Comprising leaves the claim open for the inclusion of unspecified ingredients even in major amounts. Ex parte Davis et al., 80 USPQ 448 (PTO Bd of App.1948). The applicants' argument regarding extraneous components such as silica fume, fly ash, polystyrene does not hold unless they themselves use consisting of claim language which they do not (or consisting essentially of claim language with a showing that these components materially affect properties such as compressive strengths-note that this does not seem to be the case because many of the references teach other components than bottom ash, water, and cement and obtain applicants' compressive strength levels). This is not a suggestion on how to amend applicants' claims but only an observation that the present claims use comprising claim language. Also, applicants really only have support for their compressive strengths for using a composition consisting of cement (what type?), bottom ash, and water because their Figures 7A through 9D have no other components and there are no results inclusive of other components either in this composition that would still achieve these compressive strengths.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Marcantoni whose telephone number is 571-272-1373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Marcantoni
Primary Examiner
Art Unit 1755